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Governor

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State Health Commissioner



# Indiana State Department of Health

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## MEMORANDUM

DATE: April 14, 1999

TO: Gwen Massenburg  
EPA Project Manager  
United States Environmental Protection Agency

FROM: Mario Sgro *MS*  
Environmental Epidemiology Section  
Indiana State Department of Health

SUBJECT: Himco Dump Public Comment Period

The Indiana State Department of Health is about to make available for public comment the Public Health Assessment for the Himco Dump site. This public health assessment is the evaluation of environmental data, health outcome data, and public health concerns for this site and its associated community. A copy of this document is enclosed for your review and comment. All environmental data contained in this document was provided by IDEM, EPA, or private citizens/potentially responsible parties. We encourage you to read the entire document, but please focus on the integrity of the environmental data. Please send any comments you may have to me by May 19, 1999. Thanks for your help.

Enclosure

FYI

**PUBLIC HEALTH ASSESSMENT**

**HIMCO DUMP**

**ELKHART, ELKHART COUNTY, INDIANA**

**CERCLIS NO. IND980500292**

**April 1, 1999**

**Prepared by**

**Indiana State Department of Health  
Under Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry**

## **Summary**

The Himco Dump site in Cleveland Township near Elkhart, Indiana, posed a past public health hazard when people in the area were using private well water contaminated with high levels of sodium. The affected residences were connected to the municipal water supply. Currently, the site poses no apparent public health hazard, but recommendations made in this document need to be implemented to ensure that future exposures do not occur. Groundwater is the primary environmental medium of concern. Remedial activities that have been implemented, or are planned, are protective of public health. Those plans should also diminish the threat of exposure through groundwater, but groundwater monitoring is needed to ensure that remedial activities are successful.

## **Purpose and Health Issues**

The purpose of this document is to update and finalize a public health assessment for this site. An initial public health assessment was released in 1996. The primary health concern remaining at the site is the potential for people to be exposed to contaminated groundwater through use of private well water. Groundwater on the site is contaminated with high levels of inorganic chemicals. Some volatile organic and semivolatile organic compounds have also been identified on the site. Although little contamination appears to have migrated from the site, some contamination has been identified in off-site groundwater. This document contains information that is important for community members so that possible exposure to both site-related and non-site related contaminants can be avoided.

## **Background**

The Himco Dump site is a closed landfill at County Road 10 (Bristol Street) and the Nappanee Street Extension in Cleveland Township. The site is northwest of Elkhart, Elkhart County, Indiana (see Figure 1). The site is approximately 2 miles north of the St. Joseph River. A tree line and a quarry pond are on the north/northeast side of the site. Two ponds (an L-shaped pond called the "L" pond, and a small pond) are on the west side. County Road 10 and private residences run along the south end of the site, and Nappanee Street Extension runs along the east side. The site has been studied and the U. S. Environmental Protection Agency (EPA) has issued a Record of Decision for the site.

Although other environmental media are contaminated at the site, groundwater contamination is the one environmental medium that may still pose a threat to health if anyone in the area should use their old private wells. Contaminated groundwater could reach private wells that have not yet been tested, although site remediation should diminish the possibility of off-site contamination levels increasing. Also, the proposed groundwater monitoring should alert EPA to any failure of the remedial efforts.

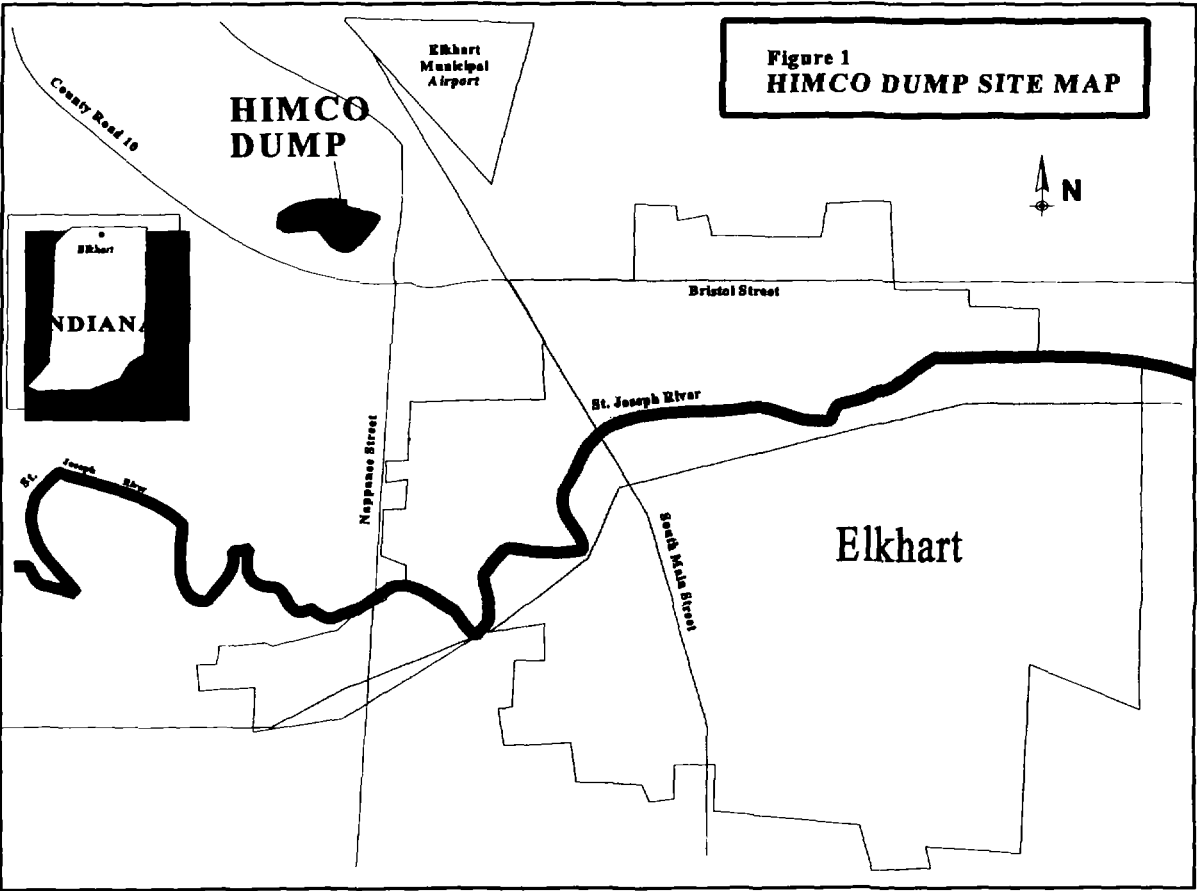
In 1971, the Indiana State Department of Health (ISDH) first identified the Himco site as an open dump. In early 1974, ISDH received complaints from residents living along County Road 10

about color, taste, and odor problems in the water from their shallow wells. Analyses of six shallow wells, ranging in depth from 20-30 feet, indicated the presence of high levels of manganese in the water. The wells were sampled by the U.S. Geological Survey (USGS) in May 1984 and May 1985. The water quality at that time was found to be satisfactory. However, the landfill operator replaced the shallow, private wells with deeper wells ranging in depth from 152-172 feet below ground surface. ISDH ordered Himco Dump closed in 1976.

USGS studied groundwater in the area in 1979 and concluded that area groundwater was impacted by the site. EPA began investigating the site in 1984 and determined that groundwater downgradient of the site contained volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and inorganic chemicals. In June 1988, the site was proposed for the National Priorities List (NPL), and the site was included on the NPL in February 1990.

In August 1990, the Agency for Toxic Substances and Disease Registry (ATSDR) evaluated samples taken in April 1990 from private wells south of the site and concluded that concentrations of sodium in the well water represented a chronic health threat to the affected residents. At EPA's request, the potentially responsible parties (PRPs) financed the cost of connecting the affected residences to the municipal water supply. By November 1990, municipal water service was provided to the residents (1).

**Figure 1. Site Map for Himco Dump**



A Remedial Investigation (Phases I and II) and Feasibility Study (RI/FS) began in July 1989 and was completed in August/September 1992 (2). As part of the RI, a risk assessment (July 1992) was prepared by EPA to determine whether contamination related to the site poses risks to human health or the environment.

The RI examined soils, landfill gas, landfill leachate, surface water, sediments of three on-site ponds, and groundwater. The RI identified 29 chemicals that potentially pose unacceptable risks for cancer or other health problems to current or future residents south of the landfill. The chemicals were grouped into three types: VOCs, SVOCs, and inorganic chemicals. Although some of the contaminants were found throughout the site, the RI showed that contamination is principally in the landfill leachate, landfill waste, and the soil in and south of the construction debris area.

Sampling during the 1989-1992 RI showed a change from the 1976 USGS report on the degree to which groundwater is impacted by the site. Results revealed very limited or no impact in the groundwater outside the boundaries of the landfill. The landfill gas analysis showed a relatively small amount of VOCs leaving the site. During the RI a "hot spot" (an isolated area of highly concentrated contaminants) was identified at the southwest border of the landfill. Since this area showed a high level of VOC contamination, including compounds such as toluene and ethylbenzene, EPA conducted an emergency action beginning in May 1992. Through this action, EPA located and removed seventy-one 55-gallon drums containing VOCs. No other hot spots have been found at the site. Based on the RI results, EPA conducted an FS to analyze all possible cleanup alternatives for the site. The FS was completed in September 1992.

The FS identified four cleanup alternatives:

1. no action;
2. single barrier cap, gas collection and treatment, groundwater monitoring, and institutional control;
3. single barrier cap, gas collection and treatment, leachate collection system, groundwater monitoring, and institutional control; and
4. composite barrier cap, gas collection and treatment, groundwater monitoring, and institutional control.

EPA prefers alternative 4 in the Proposed Plan because the alternative includes a composite barrier cap, rather than the single barrier cap included in alternatives 2 and 3 (3). This composite cap will provide greater reduction of risks for human health and the environment by greatly reducing infiltration into the landfill. Reducing infiltration will minimize the potential for the release of landfill leachate into the groundwater and environment outside the landfill boundaries.

The Indiana Department of Environmental Management (IDEM) supports EPA's preferred remedy. However, based on new information or public comments, EPA, in consultation with IDEM, may later modify the preferred alternative or select another alternative presented in the Proposed Plan and the FS.

A Draft Record of Decision (ROD) was released by the EPA in May 1993 asking for public comment on the selected remedial alternative for the site (4). The comment period ended June 11, 1993. The ROD was finalized in September 1993 (5).

### **Site Visit**

Staff conducted a windshield site visit of the Himco Dump site on May 27, 1993.

The following observations were made:

1. The site is not fenced. There is an access road which leads from the southeast corner of the site near the intersection of County Road 10 and the Nappanee Street Extension. A locked gate is present across this road. However, vehicles can easily drive around the gate to enter the site.
2. The Holiday Mobile Home Community is located directly across the street from the site. This community has approximately 150 homes.
3. The site has mature trees and vegetation throughout, with the exception of a few barren spots.
4. There were a few peripheral monitoring wells.
5. Residential areas are south and southwest of the site. Agricultural and commercial properties are north and northeast of the site.
6. Access to the site is not restricted. There is a low-lying fence on parts of the site, but the fence does not surround the entire site.
7. There is a pond northeast of the site. This pond is surrounded by an 8-foot high chain-link fence. It is reported, however, that breaks are in the fence. Therefore, the pond is accessible to the general public.
8. There were no schools or nursing homes near the site.
9. An estimated 1,000 people live within a ½-mile radius of the site based on the number of homes observed.

### Site Visit Update

On September 25, 1995, a site visit was conducted by Ms. Dollis Wright and Ms. Cheryl Thomas of ISDH as a follow-up on the Himco Dump site in Elkhart, Indiana. During the site visit, the staff made the following observations:

1. There is an adjacent cornfield northeast of the site near the site pond.
2. Monitoring wells WT113A & B were observed adjacent to the cornfield on the northeast side of the site.
3. The site was surrounded by an 8-foot, chain-link fence that is posted with signs that read, "No Trespassing" and "Private Property." One portion of the fence next to the pond was cut open and propped up with a stick beside a "No Trespassing" sign.
4. A car with Florida plates was seen parked between the pond area and the cornfield on the northeast side. No people were seen in the area.
5. Human footprints were seen in the sand outside the fence around the pond.
6. Staff from the Army Corps of Engineers were observed taking water samples inside the main entrance to the landfill. We spoke to Joni Rhiner of the Corps, informing her of our activities and about the hole in the fence. She told us she would inform EPA about the fence problem.
7. Dumped materials observed in the center of the site were both residential and construction.

On August 18, 1997, the IDEM project manager was contacted for an update on the status of the site. The hole in the fence noted in 1995 had been repaired. No additional environmental sampling has occurred at the site since 1995.

### **Discussion**

Although people could still be exposed to remaining contamination on the site if site access is not restricted, the primary concern at the site is the potential for private well water contamination. The most recent groundwater data available for review was collected in 1995. Historically, the data suggest that the shallow on-site groundwater contains high levels of some inorganic chemicals. Specific findings for both shallow and deep on and off-site groundwater are presented in the following discussions.



#### *Groundwater - Monitoring Wells (Shallow Wells)*

During Phase I (November 1990-January 1991), on-site groundwater samples were collected by EPA from shallow monitoring wells installed at the site by EPA and USGS. Shallow wells were defined as wells with screened bottoms at 50 feet or less below ground surface. The EPA wells were installed during the RI and the USGS wells were installed in 1977 and 1979. Samples were analyzed for VOCs, SVOCs, PCBs, pesticides, and inorganic chemicals.

Phase I and Phase II on-site shallow monitoring wells were labeled WT-101A, WTP-101B, WTP-101C, WT-103A, WT-CP1, WT-E2 and E3, WT-M1 and M2, and WT-P1.

For both organic and inorganic chemicals, background levels were presented in relation to on-site contaminant levels. Background levels were determined from wells which were hydraulically upgradient to the site. The shallow background wells were WT-B2 (on-site) and WT-102A (off-site). Deep background wells (screened greater than 50 feet below ground surface) were WTP-102B and WTP-102C (off-site) and WT-B3 and WT-B4 (on-site). On-site shallow wells were compared to the corresponding shallow and deep background wells.

Seven VOCs (benzene, chlorobenzene, chloroform, 1,1-dichloroethane, 2-hexanone, methylene chloride, 1,1,1-trichloroethane) were detected in the on-site shallow monitoring wells. Of those, only benzene was found above the comparison value. However, the level was below the maximum contaminant level, the amount of a chemical that requires action if present in a public water supply. Three SVOCs (diethylphthalate, bis(2-ethylhexyl)phthalate, phenol) were detected in the on-site shallow monitoring wells. None of the SVOCs were present in the shallow monitoring wells at levels above comparison values. Three inorganic chemicals, antimony, arsenic, and beryllium, were detected in the on-site shallow monitoring wells at levels above comparison values. PCBs and pesticides were not detected during the Phase I or II on-site groundwater sampling. Chemicals that were present at levels above comparison values in on-site shallow groundwater monitoring wells are shown in Table 1.

#### *Groundwater Monitoring Wells (Deep Wells)*

During Phase I (November 1990-January 1991), deep groundwater monitoring wells were defined as wells with screened bottoms at greater than 50 feet below surface. The EPA wells were installed during the RI, and the USGS wells were installed in 1977 and 1979. Samples were analyzed for VOCs, SVOCs, PCBs, pesticides, and inorganic chemicals. Phases I and II monitoring wells were labeled WT-101B and WT-101C (see Figure 3). The results of the monitoring well samples were compared to the background well sample results.

One VOC, chloroethane, was detected in the on-site deep monitoring wells, but not at a level above the comparison value. No SVOCs were detected. The inorganic chemical arsenic was detected in the on-site deep monitoring wells, but arsenic was also present in the blank, which means that a field collection or laboratory error occurred. Therefore, arsenic may not be present at all in the deep monitoring wells. No PCBs or pesticides were detected in the deep monitoring well samples. Chemicals present in the on-site deep groundwater monitoring wells that exceeded comparison values are shown in Table 1.

**Table 1. On-site Groundwater Monitoring Well Sample Results, Phases I and II**

Chemical	Sample Location	Shallow Wells Concentration Range (ppb)		Deep Wells Concentration Range (ppb)		Comparison Value	
		Phase I	Phase II	Phase I	Phase II	ppb	Source
antimony	WT-M2	36,000	ND	-	-	4	RMEG
arsenic	(Phase I-shallow) WT-103A - WT-E2 (Phase II-shallow) WT-103A - WT-P1 (Phase II-deep)	2,000-55,000	4,000 - 24,000	-	4B-9BJ	3	EMEG
benzene	WT-CP1 - WT-101A	1J - 3	1J - 3J	-	-	1	CREG
beryllium	WT-E2	ND	1,000	-	-	0.008	CREG

Concentrations listed as one number indicate only a single sample collected at that location.

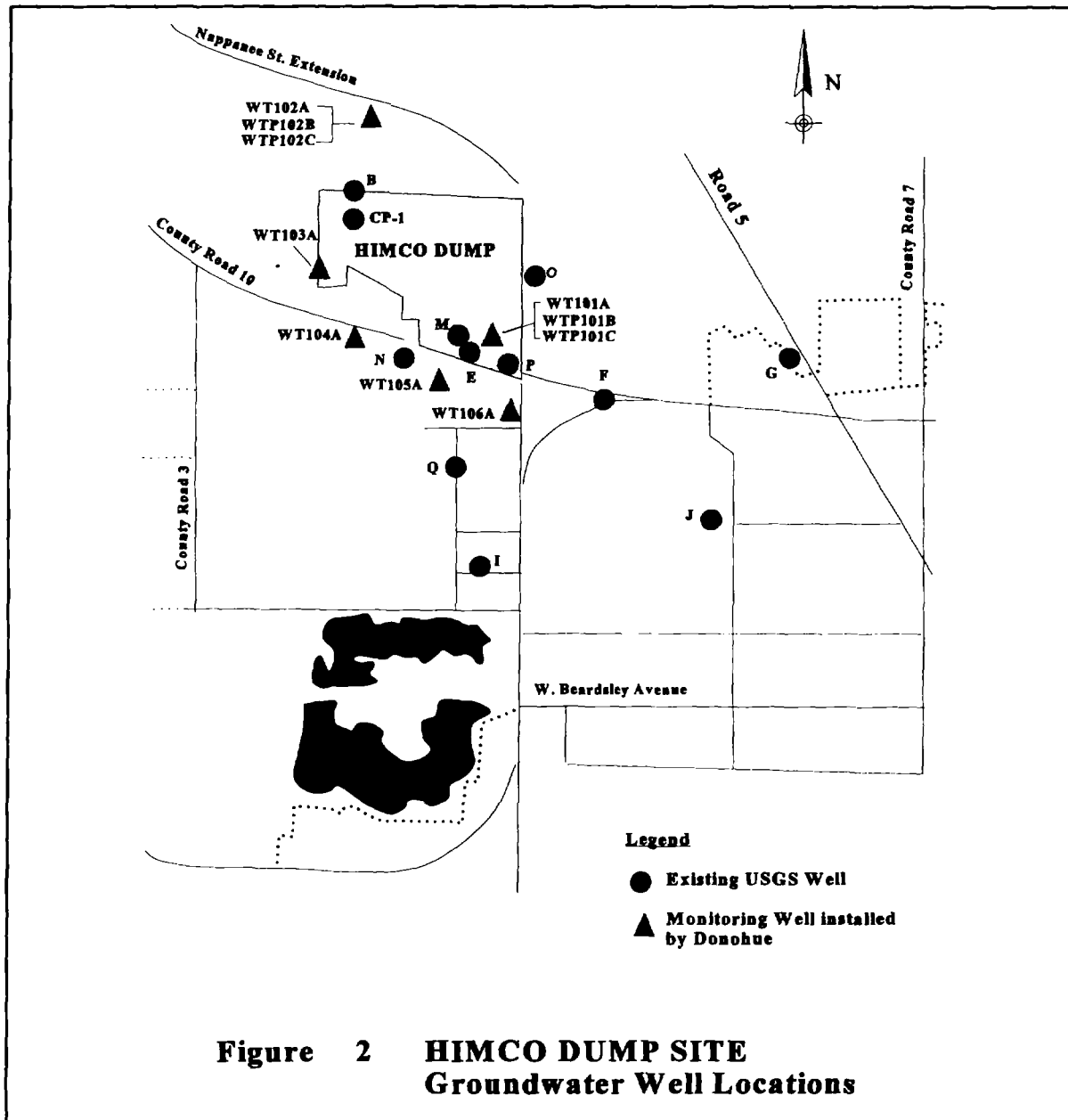
B = Compound was found in the associated blank as well as in the sample.

J = Estimated value

ND = non-detect

- = not tested

**Figure 2. Groundwater Sampling Locations for Himco Dump Site**



#### *Off-site Groundwater - Monitoring Wells (Shallow Wells)*

During Phase I (November 1990-January 1991) and Phase II (September 1991), off-site groundwater samples were collected by EPA from shallow groundwater monitoring wells installed by EPA and USGS around the Himco site (see Figure 2). Shallow wells were defined as wells with screened bottoms at 50 feet or less below ground surface. EPA wells were installed during the RI and USGS wells were installed in 1977 and 1979. Samples were analyzed for VOCs, SVOCs, PCBs, pesticides, and inorganic chemicals.

Phases I and II off-site shallow wells included WT-102A, WT-104A, WT-105A, WT-106A, WT-N1, WT-I2, I3, WT-F1, WT-F3, WT-G1, WT-J1, WT-J2, WT-01, and WT-111A. Monitoring well WT-111A was sampled by EPA only during round 2 of Phase II. The results were compared to background levels.

Seven VOCs (acetone, chloroethane, total 1,2-dichloroethene, methylene chloride, 1,1-trichloroethane, trichloroethene, and benzene) were detected in the off-site shallow monitoring wells. Trichloroethene was the only VOC found at a level above the comparison value. Two SVOCs, bis(2-ethylhexyl)phthalate and di-n-octylphthalate, were detected in the off-site shallow monitoring wells. Di-n-octylphthalate was the only SVOC present in the shallow monitoring wells at a level above the comparison value. These contaminants are sometimes found in wells as a result of well construction materials. Three inorganic chemicals (antimony, arsenic, and beryllium) were detected in the off-site shallow groundwater monitoring wells. Antimony was also present in one blank, and arsenic was present in both blanks. No PCBs or pesticides were detected during Phase I or II in the off-site shallow groundwater monitoring wells. Chemicals present that exceeded comparison values in the off-site shallow groundwater monitoring well samples are shown in Table 2.

#### *Off-site Ground Water Monitoring Wells (Deep Wells)*

During Phase I (November 1990-January 1991) and Phase II (September 1991), off-site groundwater samples were collected by EPA from deep groundwater monitoring wells installed by EPA and USGS around the Himco site (see Figure 2). Deep wells were defined as wells with screened bottoms at greater than 50 feet below the surface. The EPA wells were installed during the RI and the USGS wells were installed in 1977 and 1979. Samples were analyzed for VOCs, SVOCs, PCBs, pesticides, and inorganic chemicals.

Phases I and II off-site deep wells were labeled WT-Q1, WT-I1, WT-F2, WT-G3, and WT-J3. The results were compared to background levels.

Nine VOCs and three SVOCs were detected in the off-site deep wells, but none of the contaminants exceeded comparison values. Antimony and arsenic were found at levels exceeding comparison values in the off-site deep wells, but both chemicals were also present in the blanks. Beryllium was not detected. No PCBs or pesticides were detected in the off-site deep wells. Chemicals of concern in the off-site deep groundwater monitoring well samples are shown in Table 2.

**Table 2. Off-site Groundwater Monitoring Well Sample Results, Phase I and II**

Chemical	Concentration Range (ppb)						Comparison Value	
	Shallow Wells			Deep Wells			ppb	Source
	Sample Location	Phase I	Phase II	Sample Location	Phase I	Phase II		
antimony	(Phase I) WT-J1 - WT-I3 (Phase II) WT-F3	43B - 63	35B	WT-F2	32B	ND	4	RMEG
arsenic	(Phase I) WT-J1 (Phase II) WT-I11A - WT106A	10B	3BJ - 4	WT-101B - WT-101C	ND	4B - 9BJ	3	EMEG
beryllium	WT-106A	4	ND	ND	ND	ND	0.008	CREG
di-n-octylphthalate	WT-104A	8	ND	ND	ND	ND	3	CREG
trichloroethene	WT-F2 - WT-J1	42	ND	WT-F2	IJ	ND	3	CREG

Concentrations listed as one number indicate only a single sample at that location.

B = Compound was found in the associated blank as well as in the sample.

J = Estimated value

ND = non-detect

#### *Groundwater - Residential Wells*

During Phase I (October 1990), EPA collected off-site residential well water samples from five deep wells (RW-01, RW-04, RW-06, RW-07, RW-08) and two shallow wells (RW-02, RW-05) immediately south of the Himco site. EPA also collected one deep residential well (RW-03) water sample immediately south of County Road 10. Samples were analyzed for VOCs, SVOCs, and inorganic chemicals.

Originally, all residences had shallow wells (approximately 20-30 feet deep). Deeper wells (RW-01, RW-03, RW-04, RW-06, RW-07, RW-08), at 152 to 172 feet, were installed in 1974. Although ISDH found high levels of manganese in these shallow wells in 1974 and ordered them replaced, some of the original shallow wells remain. Two wells (RW-02 and RW-05) were sampled at residences where an older, shallow well was accessible in addition to their present deep wells. Shallow wells were sampled in addition to deep wells RW-01, RW-02, RW-04, and RW-05. Samples from the newer deep wells were collected directly from the kitchen sink tap or, if available, at a tap in the basement ahead of the water softener.

Although the residential wells were sampled during Phase I, the data could not be used for the RI interpretation of groundwater data and for the baseline risk assessment because of poor quality. The data were considered inadequate for the following reasons:

- construction details for the residential wells could not be identified and the wells' integrity could not be verified; and
- the wells could not be adequately purged before sampling, resulting in high suspended solid concentration in unfiltered samples.

The poor well quality is of health concern because poorly constructed wells are easily contaminated by bacteria, which can cause the water to taste bad, have an unpleasant odor, and can cause illness. Also, poorly constructed wells can become contaminated with chemicals more easily than wells of good quality. People can avoid the possibility of exposure to contaminants by not using the poorly constructed well water for drinking and other household purposes.

To verify that the samples from the old residential wells were not representative of the aquifer, a new monitoring well was installed near the residential wells. The sample from the new well contained only traces of benzene and arsenic. Remedial efforts should ensure that levels of contamination do not increase, but monitoring this well should provide a warning for possible private well contamination if remedial efforts are not successful.

**Table 3. Potential Exposure Pathway - Off Site**

Pathway Name	Source	Medium	Exposure Point	Exposure Route	Receptor Population	Time of Exposure	Exposure Activities	Est. Number Exposed	Chemicals (identify by name or reference in tables in document)
Ground water	Himco Dump	Water	Citizens using private wells	Ingestion	Citizens still using old, private wells and not municipal water supply	Future	Drinking water from old or unsealed private wells	1,000	Sodium Table 1 Table 2

### Community Health Concerns

The community health concerns for the Himco Dump site are based on interviews conducted with residents and local officials for EPA in June 1990 (7). The Elkhart County Health Department was contacted for any recent health concerns in August 1997. All health-related concerns are documented as follows:

1. What health-related problems can be associated with groundwater contamination for residential well use?

At one time, some of the private wells in the area contained levels of sodium that was dangerous for people on salt-restricted diets. Too much sodium is associated with high blood pressure. As a result of the sodium in those wells, the residences were connected to the municipal water supply. The private wells were not properly sealed and may be used by residents. Groundwater

at the site is contaminated, primarily with inorganic chemicals. Groundwater off the site, near residences, contains trace amounts of benzene and arsenic. At this time, levels of those chemicals are not present in concentrations that would cause health effects if people were to drink the water. Remedial efforts at the site should prevent contaminant levels from increasing, and groundwater monitoring should alert EPA of any change in condition of the groundwater that is leaving the site.

Of more concern from a health perspective at this point in time is the quality of well construction. Samples collected from some of the private wells could not be used in evaluating the content of the well water because of the poor quality of well construction. Poorly constructed wells are more susceptible to both bacteria and chemical contamination. Some types of bacteria and some chemicals, even those used to fertilize lawns or to clean septic tanks, can cause illnesses. Some of the illnesses associated with that type of contamination range from mild intestinal distress from bacteria to a serious illness, methemoglobinemia (blue baby syndrome) in infants from contamination with nitrates that come from fertilizers. For that reason, ISDH recommends that the well water from poorly constructed wells not be used and that those wells be sealed to prevent possible exposure to site-related and non-site related contamination.

2. Are there problems with the drinking water (i.e., unpleasant taste, odor, and color)?

Whether health problems will result depends on what is causing the unpleasant taste, odor, and color. Sometimes high iron levels in water can cause a bad taste, but those levels may not cause adverse health effects. Too much sodium in water can also cause the water to taste bad and can make hypertension more difficult to control. On the other hand, some types of bacteria, some harmful and some not, can cause water to have an unpleasant taste, color, and odor. To evaluate any health effects, ISDH would need to know what is causing the problem. Samples collected from private wells could not be evaluated for accurate chemical content because of the poor construction of the wells. ISDH does not have any data on possible bacterial contamination of those wells.

3. What health effects can be associated with the contamination found at the site?

Unless a person comes into contact with the contamination at the site, no adverse health effects are expected. For now, no one is known to be exposed to any contaminants in groundwater at levels associated with adverse health effects. Some surface contamination may remain on the site. For that reason, people should stay away from the area until all clean-up activities are complete. If someone has wandered onto the site infrequently, no adverse health effects should result from any exposure that may have occurred. The debris and the pond could be physical hazards, especially to small children who could injure themselves on the debris or drown in the pond. Parents should warn their children not to play on the site or go near the pond even if a hole in the fence tempts them to do so.

4. Will the three Superfund sites (Himco Dump, Conrail Rail Yard, and Main Street Well Field) in Elkhart County affect the area's environment and standard of living?

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